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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,637	03/28/2001	Gerald Sanchez	USB00 DPR ECG SY/AM	1737

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EXAMINER

BARR, MICHAEL E

ART UNIT PAPER NUMBER

1762

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,637

Applicant(s)

SANCHEZ ET AL.

Examiner

Michael Barr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it is more than one paragraph. The sentence "See Figure 1" should be deleted or combined with the remainder of the abstract.

Correction is required. See MPEP. § 608.01(b).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for controlling the thickness of the metallic coating as a function as described on line 28 of page 5 of the specification, does not reasonably provide enablement for controlling the thickness with any function of the second derivative of the curve of the meniscus and the capillary number. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to perform or provide the invention commensurate in scope with these claims. The specification does not provide any other function equation or direction as to how to practice the claimed invention with another function equation or how to determine such equation that is a function of the second derivative of the curve of the meniscus and the capillary number in order to control the coating thickness of the metallic coating. It would require one of ordinary skill in the art, practicing the invention, undue

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experimentation to determine another function of the second derivative of the curve of the meniscus and the capillary number to control the metallic coating thickness. Therefore, the claims are broader than the enabling disclosure.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-17 are vague and indefinite since it is not clear as to the metes and bounds of the claims. The claims cite the limitation that the metallic coating thickness is a function of the second derivative of the curve of the meniscus and the capillary number. However, the claims provide no indication as to what this function actually is. How would one determine whether or not one would be infringing on these claims?

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennechart et al. in view Sato et al.

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Hennechart et al. teaches an apparatus for hot-dip galvanizing steel with a molten zinc bath, where the apparatus includes an exit channel where the coated steel exits the molten bath and wiping nozzles near exit to control the thickness of the applied coating (Col. 5, lines 20-45; Fig. 1). Hennechart et al. does not teach the magnetic field creating means. Sato et al. teaches an apparatus for hot-dip galvanizing steel with a molten zinc bath, where the apparatus includes a means for creating a magnetic field near the exit of the molten bath in order to control the thickness of the applied coating and prevent strip vibrations, where the magnetic field means utilizes an alternating current (Col. 2, lines 45-68). It would have been an obvious modification to Hennechart et al. for one skilled in the art to substitute the magnetic field means of Sato et al. for the wiping nozzles in Hennechart et al., with the expectation of providing the desired coating thickness control and to provide the additional benefit of strip vibration control, as taught by the similar process of Sato et al.

While Hennechart et al. and Sato et al. do not teach controlling the coating thickness as a function of the second derivative of the curve of the meniscus and the capillary number and exit channel characteristics, the structure of the apparatus suggested by Hennechart et al. and Sato et al. is the same as that claimed and thus would have been expected to have the same capabilities. The manner in which an apparatus operates is not germane to the issue of patentability of the apparatus itself (*Ex parte Wikdahl* 10 USPQ 2d 1546, 1548). The structure of the apparatus of Hennechart et al. and Sato et al. is capable of operating as claimed and thus meets the claimed requirements.

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hennechart et al. and Sato et al. as applied to claim 12 above, and further in view of Fishman et al.

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Hennechart et al. and Sato et al. do not teach that the magnetic field means is a flat inductor. Fishman et al. teaches applying a magnetic field to a molten zinc galvanizing bath with a magnetic field providing means of a flat inductor (Col. 2, lines 9-21; Col. 4, lines 6-15). It would have been an obvious modification to Hennechart et al. and Sato et al., for one skilled in the art, to use a flat inductor to provide the magnetic field in Hennechart et al. and Sato et al., with the expectation of providing the desired results, since it is shown by Fishman et al. that flat inductors are conventional means for providing magnetic fields to molten zinc for galvanizing steel, as is the desire of Hennechart et al. and Sato et al.

9. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hennechart et al. and Sato et al. as applied to claim 12 above, and further in view of Unoki et al.

Hennechart et al. and Sato et al. do not teach that the apparatus include a means for electromagnetic pumping. Unoki et al. teaches providing molten zinc to a hot-dip plating tank by an electromagnetic pumping means (Col. 5, lines 11-15). It would have been an obvious modification for one skilled in the art to use an electromagnetic pumping means, in Hennechart et al. and Sato et al., in order to supply fresh molten zinc to the hot-dip galvanizing bath of Hennechart et al. and Sato et al., since such a pumping means is typically used for such molten zinc supply, as shown by Unoki et al. Although Hennechart et al., Sato et al., and Unoki et al. do not teach that the electromagnetic pumping means would exert pressure to maintain a meniscus height, an electromagnetic pumping means would be capable of providing such an effect in Hennechart et al., Sato et al., and Unoki et al. and thus meets the claimed requirements, as the manner in which an apparatus operates is not germane to the issue of patentability of the apparatus itself (*Ex parte Wikdahl* 10 USPQ 2d 1546, 1548).

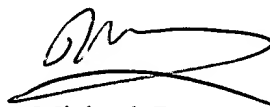
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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Barr whose telephone number is 703-305-7919. The examiner can normally be reached on Monday-Thursday 6:00 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 or 703-305-5408 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Michael Barr
Primary Examiner
Art Unit 1762

MB
June 10, 2003